

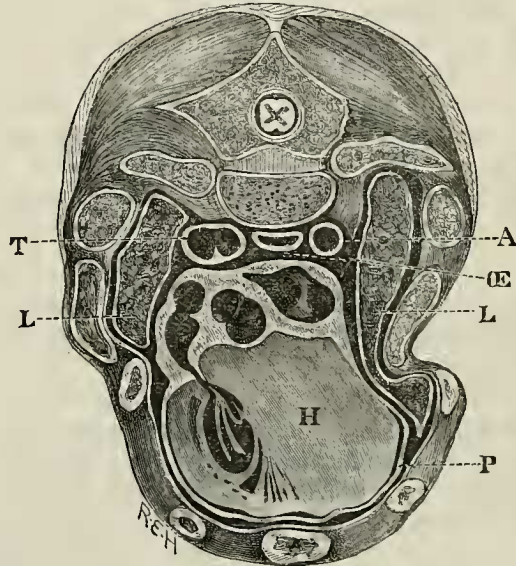
1. On some Specimens of Disease from Mammals in the Society's Gardens. By J. BLAND SUTTON, F.R.C.S., Erasmus Wilson Lecturer on Pathology, Royal College of Surgeons of England.

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In this communication I again venture to bring under notice a few specimens of diseases obtained from mammals which have died in the Society's collection during the past twelve months. Those only have been selected which appeared to me to possess a zoological as well as a pathological interest.

On several occasions I have drawn attention to the frequency of rickets in mammals living in confinement in this country, and have described some of the peculiar effects due to this disease manifested by the skeleton. Let me now describe two additional specimens. When the skeleton is thoroughly softened by rickets, the ribs are

Fig. 1.



Transverse section of the thorax of a rickety Monkey.

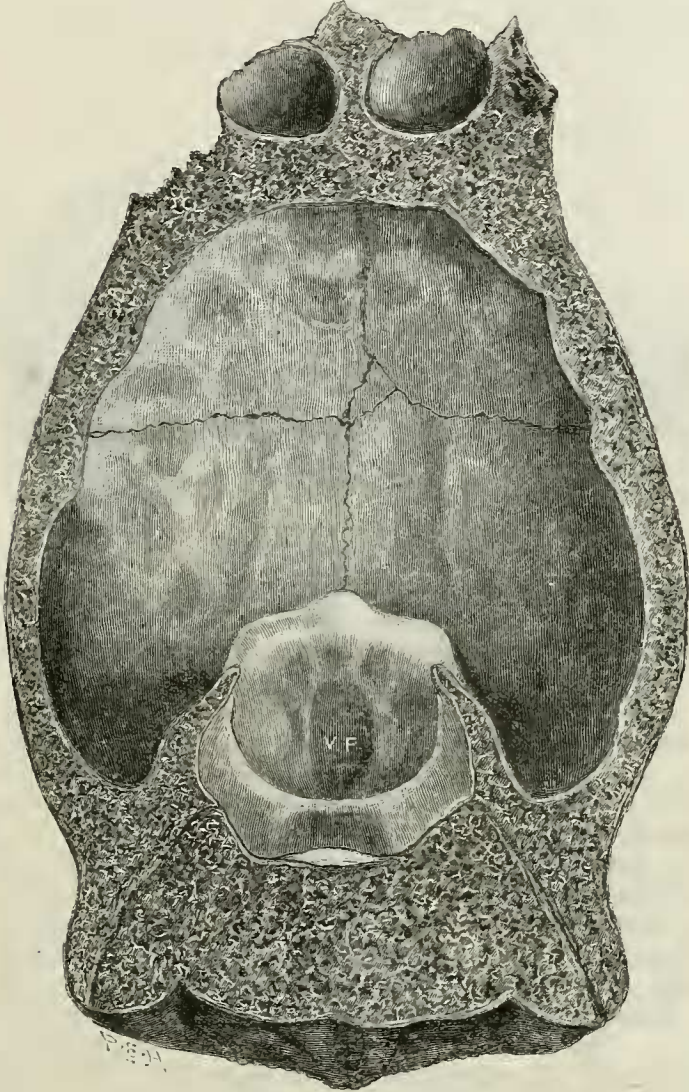
H. Heart. L, L. Lungs. T. Trachea. OE. Oesophagus. A. Aorta. P. Pericardium.

as yielding as though composed of whalebone. In consequence of this they yield to the pressure of the atmosphere and encroach upon the thoracic cavity, displace the heart, flatten the lungs, and disturb the viscera of the chest generally. In my drawing (fig. 1) a transverse section of the thorax of a Monkey severely affected by rickets is shown. In this drawing the lungs are seen as two narrow bands, the trachea is displaced to the right side, the oesophagus is compressed against the spine, and the heart is pushed forwards, and is in contact with the thoracic parietes all round, instead of hanging almost free in the

middle line. It is difficult to imagine how life could continue under such altered conditions of the respiratory and circulatory organs.

The next specimen is, so far as I know, unique. It is a well-recognized fact that when rickets affects the skull, the bones most

Fig. 2.

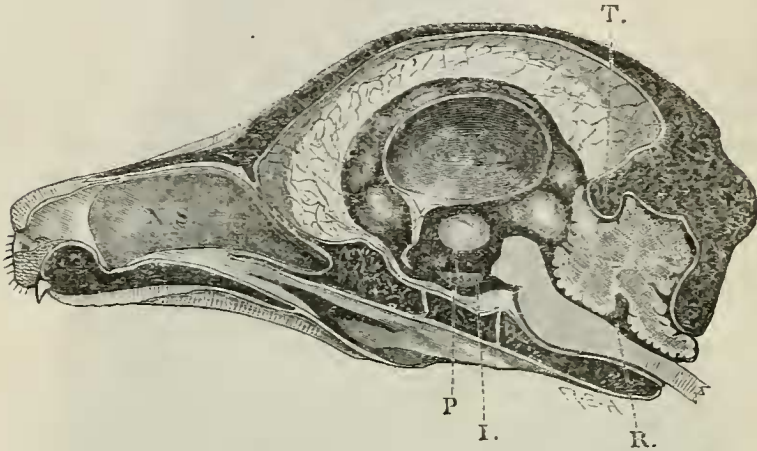


Under view of the skull-vault of a rickety Lion, with abnormal thickness of the ossific tentorium.

attacked are those preformed in membrane. Most of the Lions which have been born alive in the Gardens and survived for any length of time have developed rickets. A young Lion which died last winter had for some months previous to its death exhibited marked signs of paralysis of the hind limbs and back. The paraplegia

was attributed to pressure on the cord from the overgrown intervertebral disks. The *post-mortem* examination revealed a very curious state of affairs. The skull presented unmistakable evidence of rickets; and on removing the skull-vault, a task of considerable difficulty, it was found that the general overgrowth of bone had extended from the vault of the skull and implicated the tentorium cerebelli. This abnormally thick tentorium had compressed the medulla and cerebellum, producing general paralysis, which terminated fatally.

Fig. 3.



A longitudinal section of the head of a Lion-cub (three months), showing overgrowth of the tentorium cerebelli and dilatation of the lateral ventricle. T. Tentorium. V. Lateral ventricle. I. Infundibulum. P. Pituitary body. R. Fourth ventricle. N.S. Nasal septum (cartilaginous).

There are good reasons for believing that the abnormal thickening of the tentorium in Lions born in confinement is not uncommon if sought for. Since detecting the first case a Lion cub three months old has come to hand. The specimen was frozen, and the head divided longitudinally, when a most interesting condition of the brain was observed. It will be seen in the drawing (fig. 3) that, as in the preceding case, the tentorium cerebelli is abnormally thick, and presents at its anterior edge a rounded margin. This overgrowth of bone has pressed upon the vermiform process of the cerebellum, thus occluding the anterior part of the fourth cerebral ventricle, and preventing a free flow of fluid from the remaining cavities. As a consequence the lateral ventricles have become greatly dilated, and the foramen of Monro, instead of being represented as a slit of the dimensions of a crow-quill, is an oval aperture measuring at least an inch in its major axis. The third ventricle is likewise dilated; and the infundibulum, instead of being a narrow tube ending in the pituitary body, is widely dilated and forms part of the general cavity of the ventricle, to which it is attached.

The bones of the skull-vault are thicker than is usual in Lions of this age; and the skeleton generally presents the appearances characteristic of rickets.



The companion Lion still lives in the Gardens, and there is little reason to doubt that it is similarly affected, for it is paraplegic and can only manage to drag itself a few paces. The head is occasionally drawn to one side, and at intervals oscillates from side to side in a rhythmic manner.

So far as I am aware, the present is the first account of this singular affection that has yet been published, but there is little doubt that if looked for other specimens will turn up. The abnormality is an excellent example of disease modified by anatomical peculiarity.

There is a widespread notion that in the human subject marriages of consanguinity often result in the production of offspring with physical defects. A good deal of evidence can be adduced in support of this opinion. In animals little can be urged in its favour. In them, on the other hand, hybrid offspring are most prone to exhibit congenital defects. The following is a case in point.

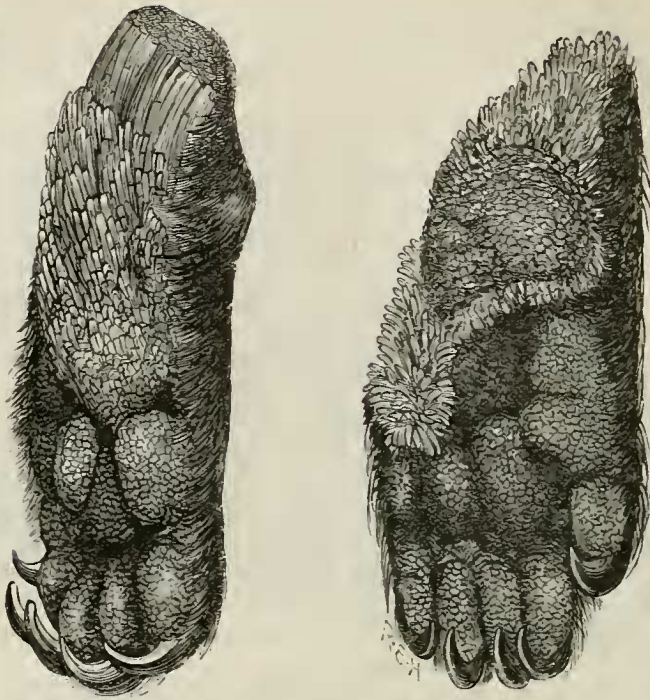
In February a female goat gave birth to two kids, the result of a cross between the Common Goat and a Goral Antelope. The kids were dead when born, and each presented enormous enlargement of the thyroid gland. There was general dropsy, affecting not only the subcutaneous tissue of the body, but giving rise to ascites and hydrothorax. The enlargement of the glands was such as is seen in the common form of goitre. The disease was not associated with defects in the bones which have been recorded in the calf under the name of sporadic cretinism.

A specimen of overgrowth occurred in the hind feet of a Coati; they are represented in my drawing (fig. 4). The animal suffered from phimosis and suppuration of the scrotum, which prevented it from freely moving about. As a result the papillæ of the callous pad have become enormously overgrown, and in one foot project posteriorly in the form of a blunt spur. These overgrown papillæ cause the feet to assume an appearance similar to the pads on the toes of an Ostrich.

On examining the feet of other Coatis confined in the Gardens, I find that all present on each hind foot, along the inner border, a collection of overgrown papillæ similar to those just described, but by no means so extensive. Whether this overgrowth of papillæ in this situation is found in the wild state I am unable to say, but in Coatis which have been long in confinement it is larger than in those recently added to the collection. The length and extent of this abnormal papillary area, in all probability, depends upon diminished usage of the foot—an inevitable result of captivity.

It is well known that Cows living upon bogs or marshy land are very liable to suffer from overgrowth of the hoofs; the same holds good for Horses. Thus, in a specimen of a Horse's manus preserved in the museum of the Royal College of Surgeons, the overgrown hoof measures from the heel to the tip nearly 12 inches. The feet from which the drawings in fig. 5 were taken belonged to a Goat which, for some time preceding its death, had lived in a muddy paddock. The longer hoof measures no less than 14 inches round the curve, the shorter one 9 inches. They are, so far as I am aware, the longest examples of overgrown hoofs yet recorded.

Fig. 4.



Abnormal growth of papillæ on the hind feet of a Goati.

Fig. 5.



Two Goat's feet with overgrown hoofs. One measures 14, the other 9 inches round the greater curve.